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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,546	12/10/2004	Wayne Francis Callen	23003-0001	5667

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EXAMINER

AMRANY, ADI

ART UNIT	PAPER NUMBER
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2836

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/517,546	Applicant(s) CALLEN ET AL.	
	Examiner Adi Amrany	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-23 and 25-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 19-23 and 25-38 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Response to Arguments

1. Applicants' arguments filed February 12, 2007, have been fully considered but they are not persuasive.

With respect to claim 25, applicants' contention that Paine is directed to a different approach is not persuasive since the reference was used in a §102 rejection. The motivation or approach of Paine is not an issue since the reference discloses the specific limitations of claim 25.

Applicants' arguments regarding claim 25 are drawn to unclaimed subject matter. First, the claimed switching relay does not require only one switching coil. One switching coil is a specific limitation of new claim 29 and therefore, will not be considered in claim 25. Second, the claimed sensor relay requires that one coil is energized in response to a fault condition. Paine discloses that only one coil (32) is energized is triggered in response to a fault condition. Coil 31 remains unaffected, as it is not triggered until the circuit breaker is reset. Third, since Paine's coils are energizes by pulses (column 1, lines 60-63) and act against each other (lines 56-58), the coils would never be partially energized. Fourth, the pending claims do not contain any limitations regarding conventional or magnetic relays. Finally, claim 25 does not contain any limitations regarding voltage or current sensing.

With respect to claims 26-27, applicants' remarks do not contain any specific arguments. The two paragraphs regarding claims 26-27 contain only blanket statements contending that Paine is unrelated to the claimed limitations.

With respect to the §103 rejection to claims 19-23 and 28, applicants appear to challenge the motivation to combine the Paine and Ahuja references. This argument, however, recites the differences between the references and the present claims. This argument is not persuasive since it does not challenge the actual combination of references. Claim 19 recites that the sensor relay is energized in response to a reference signal (voltage potential) being within a predetermined range. The predetermined range in Ahuja is the range determined to be an over-voltage condition.

All circuits must have a ground. This ground is a reference point for determining the voltage in the circuit. The limitation of a "floating" reference point does not carry any patentable weight, as the ground potential is always zero volts. The ground potential is inherently isolated from the conductor. Otherwise, the system would be short-circuited.

With respect to dependent claims 20-23 and 28, the remarks are not persuasive, as applicants have not made any specific arguments regarding these claims.

Specification

2. The disclosure is objected to because of the following informalities: page 15, lines 14-15; the phrase "connected to conductor 11 via conductor 11" is incorrect and requires correction. This objection was made in the first non-final rejection (May 19, 2006), but does not appear to have been addressed or corrected.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 25-27, 30-33 and 36-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Paine (US 3,579,041).

With respect to claim 25, Paine discloses a control circuit (figure 1, item 10; column 1, lines 29-33) including:

at least two input terminals (figure 1, item 11; column 3, lines 58-60) for electrically connecting with a power source;

at least two output terminals (figure 1, item 12; column 3, lines 58-60) for electrically connecting with a load;

a switching relay (figure 1, item 20; column 1, lines 45-64) having a switching coil (figure 1, item 22) that is selectively de-energized and energized (column 1, lines 61-64) to respectively progress the switching relay to a first mode and a second mode wherein: in the first mode the input and output terminals are respectively electrically connected for allowing the load to receive power from the source via the switching relay (column 2, line 70 to column 3, lines 2); and in the second mode the input and output terminals are electrically disconnected for preventing the source from supplying power to the load via the switching relay (column 3, lines 14-20); and

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a sensor relay (figure 1, item 30; column 1, line 65 to column 2, line 4) having only one sensor coil (item 32), the sensor coil being progressed to an energized state in response to a fault condition for energizing the switching coil (column 3, lines 7-20).

With respect to claim 26, Paine further discloses the sensor relay has a low voltage coil that is energized in response to the fault condition (item 32). The Paine coil is sensitive to current (column 1, lines 72-73). Since the coil has inherent resistance properties, a voltage drop is created across the terminals of the coil.

With respect to claim 27, Paine further discloses the low voltage coil is energized by a DC voltage (item 11). The Paine system is powered by a DC power (column 1, lines 33-35).

With respect to claim 30, Paine discloses by progressing to the energized state (connected to point 24), the switching relay de-energizes the sensor coil (column 1, lines 56-58 and 61-64). Paine discloses that none of the coils remain energized.

With respect to claim 31, Paine discloses a control circuit including at least two input terminals, two output terminals, and a switching relay, and a sensor relay, as discussed above. Paine further discloses wherein in the absence of a fault condition the circuit includes no coils that are energized (column 1, lines 61-64).

With respect to claims 32-33 and 36-38, Paine discloses the recited limitations, as discussed in the rejections of claims 26, 27, 25, 25 and 30, respectively.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 19-23, 28-29 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paine in view of Ahuja (WO 86/02786).

With respect to claim 19, Paine discloses a control circuit (figure 1, item 10; column 1, lines 29-33) including:

at least two input terminals (item 11);

at least two output terminals (item 12);

a sensor (figure 1, item 30; column 1, line 65 to column 2, line 4) having a sensor relay (item 32) that is energized in response to a reference signal being within a predetermined range (column 2, line 70 to column 3, line 2), the reference signal being derived from a voltage differential between one or more of the conductors and a floating reference point (ground) that is electrically isolated from the conductors when in use, wherein the sensor provides a sensor signal in response to the sensor relay being energized (column 3, lines 7-20); and

a switching device (figure 1, item 20; column 1, lines 45-64) having a switching relay (item 22) that is responsive to the sensor signal for progressing between a first mode (column 2, line 70 to column 3, lines 2) and a second mode (column 3, lines 14-20).

Paine does not expressly disclose the sensor reference signal being derived from a voltage differential between a conductor and a reference point that is electrically isolated from the conductors.

Ahuja discloses a control circuit having at least two input and two output terminals, and a switching relay (item 16; abstract). Ahuja discloses a voltage sensing (34) and current sensing (item 15) devices. The current-sensing device generates a voltage signal (24) that is proportional to the current. The voltage differential created by the sensor (15) is equivalent to finding the voltage differential at the output (14) and subtracting it from the voltage differential at the input (20), where each voltage point (14, 20) is compared to against a reference point. Furthermore, it would be obvious to one skilled in the art that the "floating reference point" would be earth ground.

At the time of the invention by applicants, it would have been obvious to one skilled in the art to combine the control circuit disclosed in Paine with the voltage potential sensor disclosed in Ahuja in order to protect the sensor for an over-current by sensing a voltage value (Ahuja abstract, lines 1-3).

With respect to claim 20, Paine discloses the sensor relay is a low voltage DC relay, as discussed above in the rejection of claim 26.

With respect to claim 21, Paine further discloses the switching relay is a mains voltage relay (column 1, lines 45-47).

With respect to claim 22, Paine discloses the switching relay is a DC voltage relay, as discussed above with respect to the sensor relay in the rejection of claim 26.

With respect to claim 23, Paine further discloses the sensor signal is an AC signal or derived from an AC signal (column 3, lines 58-60).

With respect to claim 28, Paine discloses the control circuit according to claim 27, and further, it would be obvious to one skilled in the art to have the low voltage coil energized by a DC voltage of greater than 1 volt, because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to claim 29, Paine does not expressly disclose the switching relay has only one switching coil. Paine discloses that the described system incorporates a magnetic latching relay, as opposed to a conventional relay (column 1, lines 51-53). It would have been obvious to one skilled in the art to reconfigure the Paine control circuit to comprise a conventional relay, which includes a return spring instead of a second coil.

With respect to claims 34-35, Paine discloses the recited limitations, as discussed above in the rejections of claims 28-29, respectively.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on weekdays, from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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